REMARKS

Reconsideration and the timely allowance of the pending claims, in view of the following remarks, are respectfully requested.

In the Final Office Action dated March 13, 2006, the Examiner rejected claims 1, 5, 21, and 25-26, under 35 U.S.C. §102(b), as allegedly being anticipated by Korenaga'721 (U.S. Patent Pub. No. 2002/0145721); rejected claims 1 and 21, under 35 U.S.C. §102(b), as allegedly being anticipated by Tiedtke '484 (D.E. 43 29 484); rejected claims 2 and 22-23, under 35 U.S.C. §103(a), as allegedly being unpatentable over Korenaga'721 in view of Kurosawa'716 (U.S. Patent Pub. No. 2002/0145716); rejected claims 3-4, under 35 U.S.C. §103(a), as allegedly being unpatentable over Korenaga'721 in view of Kurosawa'716 and Cutler '674 (U.S. Patent Pub. No. 2001/0029674); and rejected claims 9-10 and 27-28, under 35 U.S.C. §103(a), as allegedly being unpatentable over Korenaga'721 in view of Cutler '674 (U.S. Patent Pub. No. 2001/0029674).

In this response no claim amendments have been submitted. As such, claims 1-10 and 21-28 are currently presented for examination, of which claims 1 and 21 are independent.

Applicants respectfully traverse the prior art rejections, under 35 U.S.C. §102(b), §103(a) for the reasons presented below

I. Prior Art Rejections Under 35 U.S.C. §102(b), §103(a).

As indicated above, amended independent claim 1 positively recites that the control unit is configured to produce a signal indicative of the control force based on the signal indicative of the difference between the desired mass position and the actual mass position. Furthermore, claim 1 also positively recites that the estimator unit is configured to calculate an estimated relation between the signal indicative of the

control force and status information of said mass in which the status information comprises an indication of at least one of a position of the mass, a velocity of the mass, and an acceleration of the mass. These features are amply supported by the embodiments described in the Specification. (*See, e.g.,* Specification, par. **[00077]** – **[00079]**; **[00085]**-**[00097]**; FIGs. 2, 3).

In contrast to the Examiner's assertions, there is nothing in the references of record that teach or suggest the combination of features recited in claim 1. In particular, the Korenaga '721 reference discloses three systems, a fine motion linear motor position servo system **125**, a movement feedback system **135**, and a feed-forward system **131**. (*See,* Korenaga '721, par. **[0053]**; FIG. 2).

Regarding the fine motion linear motor position servo **125**, the reference discloses that the calculating means **126**, which the Examiner alleged corresponds to the claimed "comparator," calculates a difference between a current target position of the stage as specified by a position profile producing means **122** and the current position of the stage **101** as measured by an interferometer **128**. (*See,* Korenaga '721, par. **[0054]**; FIG. 2). Korenaga '721 further discloses that correcting means **132**, adjusting means **133**, and electromagnetic amplifiers **134**, which the Examiner alleged corresponds to the claimed "control unit," are actually part of feed-forward system **131** that produces a combined thrust proportional to the output of the acceleration profile producing means **123**. (*See,* Korenaga '721, par. **[0055]**; FIG. 2).

Applicant respectfully reminds the Examiner that the claim requires that the control unit is configured to produce a signal indicative of the control force ***based on the signal indicative of the difference between the desired mass position and the actual mass position***. Without conceding to the Examiner's characterizations of the claim nor the alleged teachings of the prior art, *if* the calculating means **126** (which the Examiner asserts corresponds to the claimed "comparator") calculates the claimed difference between a current target position of the stage and the current position of the stage **101** and *if* the combination of the correcting means **132**, adjusting means **133**, and electromagnetic amplifiers **134** *aka* feed-forward system **131** (which the Examiner

alleged corresponds to the claimed "control unit") produces the claimed signal indicative of said control force – then the signal produced by the "control unit" is ***not based on the difference between the desired mass position and the actual mass position***, as required by claim 1. That is, FIG. 2 clearly indicates that the ***only input*** of information to the Korenaga '721 correcting means **132**, adjusting means **133**, and electromagnetic amplifiers **134** (*aka* feed-forward system **131** and alleged claimed "control unit") is the acceleration profile producing means **123**. So, in other words, there is absolutely no supply of information from the output of the calculating means **126** (alleged claimed "comparator") to the correcting means **132**, adjusting means **133**, and electromagnetic amplifiers **134** (*aka* feed-forward system **131** and alleged claimed "control unit"). Thus, although the correcting means **132**, adjusting means **133**, and electromagnetic amplifiers **134** (*aka* feed-forward system **131** and alleged claimed "control unit") produces a combined thrust signal proportional to the output of the acceleration profile producing means **123**, it does not, in any way produce a signal indicative of the control force ***based on the signal indicative of the difference between said desired mass position and said actual mass position***, as supplied by the claimed comparator and as required by claim 1.

Moreover, Korenaga '721 discloses that the position profile producing means **122**, which the Examiner alleged corresponds to the claimed "estimator unit," generates the relationship between the time and the stage target position corresponding to that time. The reference further discloses that the acceleration profile producing means **123**, which the Examiner also alleged as corresponding to the claimed "estimator unit," generates a relationship between the time and the acceleration to be provided during that time. (*See,* Korenaga '721, par. **[0052]**; FIG. 2).

In so doing, the Korenaga '721 reference clearly fails to teach or suggest calculating the estimated relation between the signal indicative of the control force and status information of the mass in which the status information comprises an indication of at least one of a position of the mass, a velocity of the mass, and an acceleration of the mass, as required by claim 1. Specifically, both position profile producing means

122 and acceleration profile producing means **123** ***are inputs*** to the Korenaga '721 system (*i.e.*, fine motion linear motor position servo **125**, movement feedback system **135**, and feed-forward system **131**), so that they cannot, in any way, estimate a relation based on the control force signal generated by the control unit and the mass status information.

Applicant further submits that, as best understood, the Tiedtke '484 reference fails to cure the deficiencies of the Korenaga '721 reference identified above. That is, as can be determined from the Tiedtke '484 English abstract and figures, as filed in the IDS of July 15, 2004, Tiedtke '484 does not teach the combination of elements recited in claim 1.

Applicants submit that none of the remaining references, whether taken alone or in reasonable combination with Korenaga '721 (or for that matter, Tiedtke '484) teach the claimed combination of elements as recited in claim 1. For example, the Kurosawa'716 reference is directed to exposing a pattern onto a target locus that includes correction of the target locus. (*See,* Kurosawa'716, par. [**0007**]). As such, Kurosawa'716 merely teaches the use of approximating a quadratic shape for data in a correction table via a least squares method. (*See,* Kurosawa'716, par. [**0059**]; FIG. 2).

The Cutler '674 reference is directed to non-contact, small displacement sensors to determine Abbe errors. (*See,* Cutler '674, par. [**0014**]). Along these lines, Cutler '674 merely teaches the use of a 4th-order low-pass profiling filter **78** and an adder **80**, which operates as a high-pass filter to form an acceleration feed forward signal. (*See,* Cutler '674, par. [**0036**], [**0038**]; FIG. 2).

For at least these reasons, Applicants submit that none of these references, whether taken alone or in reasonable combination, teach the claimed combination of elements recited by amended claim 1. Thus, claim 1 is patentable over the references. And, because claims 2-10 depend from claim 1, claims 2-10 are also patentable by virtue of dependency as well as for their additional recitations. Accordingly, Applicants request the immediate withdrawal of the prior art rejections of claims 1-10.

Moreover, because independent claim 21 recites features that are similar to the patentable features discussed above regarding claim 1, claim 21 is also patentable for the same reasons presented above. And, because claims 21-28 depend from independent claim 21, claims 21-28 are patentable at least by virtue of dependency as well as for their additional recitations. Accordingly, Applicants request the immediate withdrawal of the prior art rejections of claims 21-28.

II. Conclusion.

All matters having been addressed and in view of the foregoing, Applicants respectfully request the entry of this Amendment, the Examiner's reconsideration of this application, and the immediate allowance of pending claims 1-10 and 21-28.

Applicant submits that this response is proper under 37 C.F.R. §1.116 as: (a) their are no claim changes; (b) the application is in condition for allowance for the reasons discussed herein; (c) there is no need for further searches as the claim features should have already been searched; and (d) the application is in better form for an Appeal, should an Appeal be necessary.

Applicant's Counsel remains ready to assist the Examiner in any way to facilitate and expedite the prosecution of this matter. If any point remains in issue in which the Examiner feels may be best resolved through a personal or telephone interview, please contact the Undersigned at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975.

The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP

E. RICO HERNANDEZ
Reg. No. 47,641
Tel. No. (703) 770-7788
Fax No. (703) 770-7901

Date: July 5, 2006
P.O. Box 10500
McLean, VA 22102
(703) 770-7900